REMARKS

In the Final Office Action[1], the Examiner:

(1)   rejected claims 1, 2, 5, and 7-10 under 35 U.S.C. §103(a) as being unpatentable over JP 06-070267 (*Olympus*) in view of U.S. Patent Application Publication No. 2006/0280368 (*Petrich*);

(2)   rejected claim 4 under 35 U.S.C. §103(a) as being unpatentable over *Olympus* in view of *Petrich* in view of Drettakis et al., NPL Document "Interactive Common Illumination for Computer Augmented Reality," (*Drettakis*);

(3)   rejected claim 16 under 35 U.S.C. § 103(a) as being unpatentable over *Olympus* in view of U.S. Patent No. 6,614,427 (*Aubrey*); and

(4)   rejected claim 17 under 35 U.S.C. § 103(a) as being unpatentable over *Olympus* in view of *Petrich* and in further view of *Aubrey*.

By this Amendment, Applicant proposes to amend claims 1 and 5, and cancel claims 2 and 16 without prejudice or disclaimer. Claims 1, 4, 5, 7-10, and 17 are pending in the application.

1.   Support for Claim Amendments

The support for the amendments to the claims can be found throughout the specification and drawings. For example, support for the amendments can be found at page 17, line 16 to page 18, line 24 of the originally filed specification.

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[1] The Final Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Final Office Action.

2.   Rejection of Claims 1, 2, 5 and 7-10 Under 35 U.S.C. §103(a)

Claim 2 is canceled rendering the rejection moot. However, Applicant respectfully traverses the rejection of claims 1, 5, and 7-10 under 35 U.S.C. §103(a) as being unpatentable over *Olympus* in view of *Petrich*.

"The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. . . . [R]ejections on obviousness cannot be sustained with mere conclusory statements." M.P.E.P. § 2142, 8th Ed., Rev. 6 (Sept. 2007) (internal citation and inner quotation omitted). "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art." M.P.E.P. § 2143.01(III) (emphasis in original). "All words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03. "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." M.P.E.P. § 2141.02(I) (emphases in original).

"[T]he framework for objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q 459 (1966). . . . The factual inquiries . . . [include determining the scope and content of the prior art and] . . . [a]scertaining the differences between the claimed invention and the prior art." M.P.E.P. § 2141(II). "Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art." M.P.E.P. § 2141(III).

Claim 1 recites, in part, "detecting lightness of the light sources based on depth of the shadows at the detectors." Claim 5, although of different scope than claim 1, recites similar elements.

The Final Office Action acknowledges that *Olympus* fails to teach detecting the lightness of the light sources at the detectors, but relies on paragraph [0005] of *Petrich* to remedy this deficiency. *See* Final Office Action, pgs. 4-5. Furthermore, the Final Office Action alleges that that it would have been obvious to combine *Petrich* and *Olympus* "to gather more accurate information relating to the surround environment, which in turn, the data is used to produce more realistic synthetic images." *See id.* However, these allegations are incorrect.

Petrich is directed to a system and method for discovering and categorizing attributes of a two-dimensional photograph, so that the photograph may be merged with other photographs or three-dimensional computer rendered-images. *See* paragraph [0003]. A three-dimensional target device with, for example, a dome shape, is placed within a photograph at the time of capture. The dome shape is generally illuminated unevenly, resulting in both highlight areas (902) and shadow areas (903). A series of horizontal scan lines 904 determine lightness and darkness values as shown in Fig. 9. A specific scan line is calculated within the defined arc area of the target device by a function of length S of (907) and vertical offset P (906). *See* paragraph [0035]; and Fig. 9. Thus, the lightness of the light source in *Petrich* is detected based on horizontal scan lines calculated by a function of length and vertical offset of the dome shape with respect to the scan line, not *Petrich's* shadow areas (903). Accordingly, *Petrich* fails to

teach or suggest "detecting lightness of the light sources based on depth of the shadows at the detectors" as recited in claim 1.

Furthermore, the Final Office Action's motivation to combine *Olympus* and *Petrich* "to gather more accurate information relating to the surround environment, which in turn, the data is used to produce more realistic synthetic images" is simply a conclusory statement not based on any rational underpinning. Indeed, there is no indication that the method used in *Petrich* is more accurate than the method used in *Olympus*. Furthermore, the Final Office Action's allegation that "Olympus would perform correctly when used with the plurality of light sources of Petrich" is without merit. As discussed in *Drettakis* "the addition of a light source typically affects a large part of the environment," which requires modification to the image "since the addition of a source can add an order (or orders) of magnitude to the radiousity values of a scene." See *Drettakis*, § 6.2, para. 2. There is no indication that *Olympus* is able to handle this increase in orders of magnitude.

Moreover, even if two light sources were closely grouped together in *Olympus* to effectively function as a single light source, this would result in the creation of a single shadow, rather then a plurality of shadows as recited in the independent claims. Accordingly, the combination of *Olympus* and *Petrich* would not result in the claimed invention. Should the Examiner maintain that *Olympus* and *Petrich* are properly combinable, Applicant respectfully requests that the Examiner provide explicit analysis of how the combination of *Olympus* and *Petrich* results in "more accurate information" that would result in "more realistic synthetic images."

For at least these reasons, Applicant respectfully requests withdrawal of the rejection of independent claims 1 and 5 under 35 U.S.C. § 103(a). Furthermore, Applicant respectfully requests withdrawal of the rejection of claims 7-10 under 35 U.S.C. § 103(a) at least based on their dependence from claim 5, as well as the additional elements they recite.

3. Rejection of Claim 4 Under 35 U.S.C. §103(a)

Applicant respectfully traverses the rejection of claim 4 over *Olympus* in view of *Petrich* in view of *Drettakis*.

Claim 4 depends from independent claim 1, and therefore includes all of the elements recited therein. As discussed above, neither *Olympus* or *Petrich* teaches nor suggests at least the claimed detecting lightness of the light source. *Drettakis* fails to remedy the deficiencies of *Olympus* and *Petrich* because *Drettakis* also fails to teach or suggest "detecting lightness of the light sources based on depth of the shadows at the detectors" as recited in claim 1, from which claim 4 depends.

Thus, *Olympus*, *Petrich*, and *Drettakis*, taken alone or in combination, fail to teach or suggest each and every element of dependent claim 4. Accordingly, no *prima facie* case of obviousness has been established with respect to claim 4. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection of claim 4 under 35 U.S.C. § 103(a).

4. Rejection of Claim 16 Under 35 U.S.C. § 103(a)

Claim 16 is canceled, rendering the rejection moot.

5. Rejection of Claim 17 Under 35 U.S.C. § 103(a)

Applicant respectfully traverses the rejection of claim 17 over *Olympus* in view of *Petrich* and *Aubrey*.

Claim 17 depends from independent claim 5, and therefore includes all of the elements recited therein. As discussed above, neither *Olympus* or *Petrich* teach or suggest at least the claimed detecting lightness of the light source. *Aubrey* fails to remedy the deficiencies of *Olympus* and *Petrich* because *Aubrey* also fails to teach or suggest "detecting . . . lightness of the light sources based on depth of the shadows at the detectors" as recited in claim 17, from which claim 5 depends.

Thus, *Olympus*, *Petrich*, and *Aubrey*, taken alone or in combination, fail to teach or suggest each and every element of dependent claim 17. Accordingly, no *prima facie* case of obviousness has been established with respect to claim 17. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection of claim 17 under 35 U.S.C. § 103(a).

6. Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge

any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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